

WHAT IS CLAIMED IS:

1. An electro-optical device, comprising:
  - a plurality of scanning lines;
  - a plurality of data lines;
  - a plurality of pixels correspondingly provided to intersections of the scanning lines and the data lines, each of the plurality of pixels having storing device that stores data, a driving element that sets a driving current in accordance with the data stored in the storing device, and an electro-optical element that emits light with a brightness corresponding to the set driving current;
  - a scanning line driving circuit that selects the scanning line corresponding to a pixel in which data should be written, by outputting a scanning signal to the scanning lines;
  - a data line driving circuit that cooperates with the scanning line driving circuit to output data to the data line corresponding to the pixel in which data should be written; and
  - a drive mode selecting circuit that selects a drive mode of each of the plurality of pixels,

wherein, when a first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element for a first light emitting time period shorter than a time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected, and

wherein, when a second drive mode other than the first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element for a second light emitting time period longer than the first light emitting time period in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.
2. An electro-optical device, comprising:
  - a plurality of scanning lines;
  - a plurality of data lines;
  - a plurality of pixels correspondingly provided to intersections of the scanning lines and the data lines, each of the plurality of pixels having a capacitor to which data writing is performed, a driving transistor that sets a driving current in accordance with the data written to the capacitor, and an electro-optical element that emits light with a brightness corresponding to the set driving current;

a scanning line driving circuit that selects the scanning line corresponding to the pixel in which data should be written, by outputting a scanning signal to the scanning lines;

a data line driving circuit that cooperates with the scanning line driving circuit to output data to the data line corresponding to the pixel in which data should be written; and

a drive mode selecting circuit that select a drive mode of each of the plurality of pixels,

wherein, when a first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element for a first light emitting time period shorter than a time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected, and

wherein, when a second drive mode other than the first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element for a second light emitting time period longer than the first light emitting time period in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

3. The electro-optical device according to Claim 2, the drive mode selecting circuit impulse-driving the electro-optical element when the first drive mode is selected, and hold-driving the electro-optical element when the second drive mode is selected.

4. The electro-optical device according to Claim 2, each of the pixels further having a control transistor provided in a current path of the driving current to be supplied to the electro-optical element, and

the drive mode selecting circuit driving the electro-optical element in the first drive mode and the electro-optical element in the second drive mode, by controlling an on/off state of the control transistor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

5. The electro-optical device according to Claim 4, wherein, when the first drive mode is selected, the drive mode selecting circuit impulse-drives the electro-optical element by repeatedly cutting off the current path of the driving current using the control transistor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

6. The electro-optical device according to Claim 5, wherein, when the second drive mode is selected, the drive mode selecting circuit hold-drives the electro-optical element, by holding the current path of the driving current using the control transistor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

7. The electro-optical device according to Claim 2, wherein, when the first drive mode is selected, the drive mode selecting circuit impulse-drives the electro-optical element by supplying the driving current to the electro-optical element in accordance with the data written to the capacitor and then erasing the data written to the capacitor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

8. The electro-optical device according to Claim 7, wherein, when the second drive mode is selected, the drive mode selecting circuit hold-drives the electro-optical element by continuously supplying the driving current to the electro-optical element in accordance with the data written to the capacitor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

9. The electro-optical device according to Claim 2, the data line driving circuit outputting the data as a data current to the data lines,  
each of the pixels further having a programming transistor, and  
the programming transistor carrying out the data writing to the capacitor on the basis of a gate voltage that is generated due to carrying data current flowing in a channel of the programming transistor.

10. The electro-optical device according to Claim 9, the driving transistor also serving as the programming transistor.

11. The electro-optical device according to Claim 2, the data line driving circuit outputting the data as a data voltage to the data line, and  
the data writing to the capacitor being carried out on the basis of the data voltage.

12. The electro-optical device according to Claim 2, the drive mode selecting circuit outputting a pulse signal of controlling the driving of the electro-optical element on the basis of a drive mode signal of specifying the drive mode, and  
the drive mode selecting circuit outputting a signal having a pulse shape in which a high level and a low level are alternately repeated as a pulse signal when the first

drive mode is selected, and outputs a signal having a waveform other than that in the first drive mode as the pulse signal when the second drive mode is selected.

13. The electro-optical device according to Claim 12, the drive mode selecting circuit comprising:

a flip-flop that holds a level of the drive mode signal at a timing when the scanning signal is varied;

a selecting section that selects and outputs any one of a first driving signal having a pulse shape in which a high level and a low level are alternately repeated and a second driving signal having a waveform other than that of the first driving signal, in accordance with the level held in the flip flop; and

a logic circuit that outputs the pulse signal on the basis of the signal output from the selecting section and a control signal synchronized with the scanning signal and having a logic level opposite to that of the scanning signal.

14. An electronic apparatus mounted with the electro-optical device according to Claim 1.

15. A method of driving an electro-optical device, comprising a plurality of pixels correspondingly provided to intersections of scanning lines and data lines, each of the plurality of pixels having a storing device that stores data, a driving element that sets a driving current in accordance with the data stored in the storing device, and an electro-optical element that emits light with a brightness corresponding to the set driving current, a drive mode of each of the plurality of pixels being selected, the method comprising:

a first step of, when a first drive mode is selected as the drive mode, driving the electro-optical element for a first light emitting time period shorter than a time period from a time point at which a scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected; and

a second step of, when a second drive mode other than the first drive mode is selected as the drive mode, driving the electro-optical element for a second light emitting time period longer than the first light emitting time period in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

16. A method of driving an electro-optical device, comprising a plurality of pixels correspondingly provided to intersections of scanning lines and data lines, each of the plurality of pixels having a capacitor to which data writing is performed, a driving transistor for setting a driving current in accordance with the data written to the capacitor, and an

electro-optical element that emits light with a brightness corresponding to the set driving current, a drive mode of each of the plurality of pixels being selected, the method comprising:

a first step of, when a first drive mode is selected as the drive mode, driving the electro-optical element for a first light emitting time period shorter than a time period from a time point at which a scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected; and

a second step of, when a second drive mode other than the first drive mode is selected as the drive mode, driving the electro-optical element for a second light emitting time period longer than the first light emitting time period in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

17. The method of driving an electro-optical device according to Claim 16, in the first step, the electro-optical element being impulse-driven, and in the second step, the electro-optical element being hold-driven.

18. The method of driving an electro-optical device according to Claim 16, each of the pixels further having a control transistor provided in a current path of the driving current to be supplied to the electro-optical element, and

in the first step, the electro-optical element being impulse-driven by repeatedly cutting off the current path of the driving current using the control transistor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

19. The method of driving an electro-optical device according to Claim 18, in the second step, the electro-optical element being hold-driven by holding the current path of the driving current using the control transistor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

20. The method of driving an electro-optical device according to Claim 16, in the first step, the electro-optical element being impulse-driven by supplying the driving current to the electro-optical element in accordance with the data written to the capacitor and then erasing the data written to the capacitor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

21. The method of driving an electro-optical device according to Claim 20, in the second step, the electro-optical element being hold-driven by continuously supplying the

driving current to the electro-optical element in accordance with the data written to the capacitor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

22. The method of driving an electro-optical device according to Claim 16, each of the pixels further having a programming transistor, and also data is supplied as a data current to each of the pixels, and

the data writing to the capacitor being carried out on the basis of a gate voltage generated due to the data current flowing in a channel of the programming transistor.

23. A method of driving an electro-optical device according to Claim 16, data being supplied as a data voltage to each of the pixels, and

the data writing to the capacitor being carried out on the basis of the data voltage.